

28 June 2001
REVISION 1

STATEMENT OF WORK (SOW)
FOR
REDESIGN, TESTING, AND PRODUCTION
OF THE
A/S32P-23 CRASH FIRE RESCUE TRUCK HUB ASSEMBLY

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Replace page 3, Report No. 98-MFA-130 changed to correctly read 98-MFA-007
Replace page 6, 3.32.2 added requirement that the casting be "Class 3"

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Meyers, V. Cliff, "Failure Analysis of P-23 Fire Truck Wheel Assembly Hub Housing", Report No. 98-MFA-025, WR-ALC/TIEDM Materials Analysis Team, 15 May 1998.

Meyers, V. Cliff, "Failure Analysis of P-23 Fire Truck Wheel Assembly Stub Axle", Report No. 98-MFA-028, WR-ALC/TIEDM Materials Analysis Team, 11 Jun 1998.

Meyers, V. Cliff, "Failure Analysis of P-23 Fire Truck Wheel Assembly Hub Housing", Report No. 98-MFA-030, WR-ALC/TIEDM Materials Analysis Team, 26 May 1998.

Meyers, V. Cliff, "Failure Analysis of P-23 Fire Truck Wheel Assembly Stub Axle", Report No. 98-MFA-032, WR-ALC/TIEDM Materials Analysis Team, 01 Jul 1998.

Meyers, V. Cliff, "Failure Analysis of P-23 Fire Truck Wheel Assembly Hub Housings", Report No. 98-MFA-062, WR-ALC/TIEDM Materials Analysis Team, 18 Mar 1999.

Meyers, V. Cliff, "Failure Analysis of P-23 Fire Truck Wheel Assembly Stub Axle", Report No. 98-MFA-007, WR-ALC/TIEDM Materials Analysis Team, 12 May 1998.

Register, Daniel C., "Structural Analysis Report P-23 Fire Truck Stub Axle", Report No. DTA-TR-98-004, Project No. DTA98-LE-001, Structures Analysis Team, WR-ALC/TIEDD, May 1998.

"Reliability and Engineering Analysis of the P-23 CFR Truck Stub Axle – Test Procedures Document", Contract No. F09603-95-D-0180, Delivery Order No. 0007, 16 Apr 1999.

"Reliability and Engineering Analysis of the P-23 CFR Truck Stub Axle – Final Test Report", Contract No. F09603-95-D-0180, Delivery Order No. 0007, 29 Feb 2000.

2.2 Technical Orders (T.O.s).

36A12-8-17-11	Operation and Operator Maintenance Instructions Crash Fire Rescue Truck Basic: 1 October 1993
36A12-8-17-12	Maintenance and Overhaul Crash Fire Rescue Truck Basic: 1 October 1993
36A12-8-17-14	Illustrated Parts Breakdown Crash Fire Rescue Truck Basic: 2 February 1996

2.3 Drawings.

26-0402-00	Assembly, Hub
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3.1.3.2 Proprietary rights resulting from the performance of the requirements of this SOW. The contractor shall not assert any proprietary rights for any of the products resulting from the performance of the requirements of this SOW.

3.2 Design.

3.2.1 Stub axle design. The contractor shall redesign the stub axle in accordance with 3.1.2. The redesign may include, but is not limited to, changes in material, manufacturing processes, machining, or configuration. In addition, provisions for the Central Tire Inflation System (CTIS) shall be deleted. There is no requirement for the new stub axle to be interchangeable with the original stub axle.

3.2.2 Hub housing design. The contractor shall redesign the hub housing and/or incorporate improved foundry processes to minimize the likelihood of porosity or shrinkage defects. The contractor shall revise the drawing to require that the casting be at least Grade C, Class 3, of SAE AMS-STD-2175 and to require that eddy current examination be performed at the circumferential groove area on the mounting flange of each housing to inspect for cracks or linear porosity open to the surface. Further redesign may be performed, as there is no requirement for the new hub housing to be interchangeable with the original hub housing.

3.2.3 Hub assembly design. The contractor shall redesign the hub assembly to incorporate the redesigned stub axle and hub housing and to eliminate the CTIS provisions. Further redesign may be performed, as there is no requirement for the individual components of the new hub assembly to be interchangeable with the components of the original hub assembly. The redesigned hub assembly shall be form, fit, and function interchangeable with the hub assembly with the exception of the CTIS provisions.

3.3 Structural analysis. The contractor shall perform a structural analysis of the redesigned stub axle to demonstrate compliance with 3.1.2. Finite element analysis (FEA) shall be used, with a mesh suitable for accurate results at high stress areas of the stub axle.

3.4 Testing.

3.4.1 Prototype production. The contractor shall fabricate prototype redesigned hub assemblies for testing purposes. If the bench test option is exercised, the contractor shall fabricate at least 14 prototype hub assemblies; otherwise, at least 11 shall be fabricated.

3.4.2 First article testing. Two prototype hub assemblies shall be provided to Robins AFB for first article testing, which shall be performed by the Government. One shall be disassembled; testing shall include, but not be limited to, material and casting quality, tensile strength, dimensions, etc. The other shall be subjected to a visual inspection as an assembly.

3.4.3 Trial installation. The contractor shall install prototype hub assemblies at all eight positions of a P-23 to ensure form, fit, and function interchangeability. The trial installation shall be performed at Moody AFB GA.